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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/425,234	10/25/1999	HAMID RABIE	4320-91	9266

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EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/425,234

Applicant(s)

RABIE ET AL.

Examiner

Krishnan S. Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 5-17 are pending in the appeal brief/after-final amendment of 8/25/05.

In view of the appeal brief filed on 8/25/05, **PROSECUTION IS HEREBY REOPENED**. A new ground for rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 5-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 11/106,681. Although the conflicting claims are not identical, they are not patentably distinct from each other because all the claims recite methods of cleaning a membrane using cleaning chemicals with obvious variations in cleaning agent concentrations and/or the number of cleaning cycles. Any details of the system recited are also obvious because the two applications have the same or similar system having immersed membranes and are for treating water containing solids.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Terminal Disclaimer

The terminal disclaimer filed on 8/25/05 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patents granted on the applications 10/377,647 and 10/461,687 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

The after-final amendment of 8/25/05 have been entered and considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "more intensive first cleaning" . There is insufficient antecedent basis for this limitation in the claim. For examination purpose, any additional cleaning step is assumed as the more intensive first cleaning.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-10 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (US 5,403,479).

Claim 5: Smith teaches the preamble part of the claim given in the first paragraph, i.e., one or membranes forming one or more modules with the permeate side in communication with one or more headers, the membranes being normally immersed, and is used for producing filtered permeate – see figures 2 and 7 column 2 lines 63-66. Smith teaches the cleaning events recited in the claim as follows:

(a) stopping permeation: column 17 lines 25-31 teaches that the feed flow is shutoff, but the reference does not specifically state stopping permeate. However, this is implied, since it is not possible to pass cleaning solution from the lumen side of the membrane to the outside in the reverse flow without stopping permeation. “[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976).

(b) flow in chemical cleaners to one or more of the headers in a series of pulses, pulses being separated by waiting periods in which flow of the chemical cleaner is stopped: column 11 lines 29-47 teaches cyclically varying pressures in pulses to no more than bubble point (range of 0.1 to 1 psi for loose MF membrane and up to 100 psi for tight UF membrane). The cyclic varying of the pulses also implies stopping flow in between pulses. In re Preda.

(c) resuming permeation: see column 11 lines 54-55, continued withdrawal of permeate after cleaning cycles.

(d) Membrane remains immersed during the chemical cleaner flows: without draining the tank would mean the membrane remains immersed – see column 11 lines 24-26.

(e) outside of the membrane is in fluid communication with water containing solids – see the feed described as dirty water in the abstract, and containing organic matter.

(f) during step (b), all chemical cleaner reaching the one or more headers remains in the enclosed space or flows through the walls of the membrane in a direction reverse to the permeate flow – see column 17 lines 50-56 when dead-end operation is desired. Whether dead-end operation or recycle operation, the chemical cleaner remains in the header and flows into the feed side in reverse flow.

Claim 6 adds the frequency of the cleaning events as 1-7 times per week and also adds a more intensive cleaning 15 days apart. See figure 4 of the reference, which shows cleaning data points 1 and 6 which are about 15 days apart (intensive cleaning), and several event cleaning between them.

Claims 7-10: the weekly CT values fall in the range 2000 and 20,000 min.mg/L for the cleaning events. The min/mg/L value for figure 4, for example, would be about 4500 for the event cleaning between the data points 1 and 6 (1 and 6 being intensive cleaning are not counted). If one were to use the pulse cleaning step for one hour duration, or have the hypochlorite in every one of the event cleaning in figure 4, this would be about 10,000 or more. Also, this parameter is a result-effective variable depending on the flow rate of the feed through the system, and the quality of feed, and

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can be optimized. If the feed contains more bacteria and other organic matter, it will require more chemical cleaner. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Claim 13: pulses selected to provide chemical cleaner in an area in the membranes and in an area in tank water adjacent the outside of the membrane: see Smith abstract re the fouling film formed on the outside surface of the membrane, and col 14 lines 33-68 re effect of the cleaning solution on the fouling biofilm.

Claim 14: the pulsing pressure is in the range as in claim 14, since Smith uses min 100 kPa *absolute* pressure (Smith says this as 1 bar or at least 0.1psig, which means the 100kPa is absolute pressure). Since 5 – 55 kPa is above the pressure on the outside of the membrane (which at least would be one atm, or about 1 bar), the pressures are within the same range. Membranes are hollow fibers – see abstract.

Claim 15: the flow rate of the membrane should be inherently the same in Smith, since Smith uses similar membranes (UF or microfiltration – see abstract). Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed

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the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986)

Claims 16 and 17: The reference teaches that the amount of cleaning fluid discharged into the feed is very small to affect the permeate quality, and therefore, it may not be necessary to drain the tank after the cleaning step. Column 11 lines 50-56. This would imply that one could drain the tank to remove the cleaning chemicals if the amount of cleaning chemicals used is excessive, and/or otherwise advocates such draining. In re Preda. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971)). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). Also, a reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. The question whether a reference "teaches away" from the invention is inapplicable to an anticipation analysis. *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11,12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith'479.

Claims 11-12: Claims 11 and 12 recite the time durations of the pulse and wait periods, which specific ranges are not taught by the reference. However, the time duration of the pulse and wait are, again, result effective variable, and would depend on the degree of fouling expected from the bio-loading of the water and the flow rates through the membrane. One of ordinary skill in the art could easily optimize these variables. (In re Boesch..)

Response to Arguments

Applicant's arguments with respect to claims 5-17, filed with the appeal brief of 8/25/05 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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9/22/05



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